SEQUENCE LISTING

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<120> CXC Chemokine Receptor 4 Agonist Peptides

<130> 080421-000100US

<140> US 10/086,177
<141> 2002-02-26

<150> CA 2,305,036
<151> 2000-04-12

<150> US 60/232,425
<151> 2000-09-14

<150> CA 2,335,109
<151> 2001-02-23

<150> US 09/835,107
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<160> 214

<170> PatentIn version 3.3

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<400> 1

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            20                  25                  30
Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
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Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
    50                  55                  60
Ala Leu Asn
65
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<223> human SDF-1 precursor, PBSF

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1 5 10 15
Cys Leu Ser Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys
20 25 30
Arg Phe Phe Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys
35 40 45
Ile Leu Asn Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys
50 55 60
Asn Asn Asn Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln
65 70 75 80
Glu Tyr Leu Glu Lys Ala Leu Asn Lys Arg Phe Lys Met
85 90

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<220>
<223> human SDF-1beta

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1 5 10 15
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20 25 30
Arg Phe Phe Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys
35 40 45
Ile Leu Asn Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys
50 55 60
Asn Asn Asn Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln
65 70 75 80
Glu Tyr Leu Glu Lys Ala Leu Asn Lys Arg Phe Lys Met
85 90

<210> 4
<211> 17
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<220>
<223> synthetic CXCR4 agonist SDF-1(1-17), CTCE9902

<400> 4
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15
His

<210> 5
<211> 6
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<213> Artificial Sequence

<220>
<223> CXCR4 agonist sequence motif within 20 amino acids
of the N-terminus

<400> 5
Arg Phe Phe Glu Ser His
1 5

<210> 6
<211> 9
<212> PRT
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<220>
<223> synthetic SDF-1 peptide analogue CXCR4 agonist

<400> 6
Lys Pro Val Ser Leu Ser Tyr Arg Cys
1 5

<210> 7
<211> 9
<212> PRT
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<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> dimerised by formation of a disulfide bond between two Cys residues in position 7 of two SEQ ID NO:7 peptides

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Lys Pro Val Ser Leu Ser Tyr Arg Cys
1 5

<210> 8
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<222> (10)..(10)
<223> Xaa = Lys whose epsilon amino group forms a covalent amide bond with the alpha amino group of Cys at position 9 of KPVSLSYRC (SEQ ID NO:9), thereby forming a dimer

<400> 8
Lys Pro Val Ser Leu Ser Tyr Arg Cys Xaa
1 5 10

<210> 9
<211> 9
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<220>
<223> portion of synthetic CXCR4 agonist SDF-1(1-9)-2
(Compound #3)

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Xaa = Cys whose alpha amino group forms a covalent amide
bond with the epsilon amino group of Lys at position 10
of KPVSLSYRCX (SEQ ID NO:8), thereby forming a dimer

<400> 9
Lys Pro Val Ser Leu Ser Tyr Arg Xaa
1 5

<210> 10
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<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist dimer of SDF-1 amino
acids 1-8

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Xaa = Lys whose epsilon amino group forms a covalent amide
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KPVSLSYX (SEQ ID NO:11), thereby forming a dimer

<400> 10
Lys Pro Val Ser Leu Ser Tyr Arg Xaa
1 5

<210> 11
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acids 1-8

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Xaa = Arg whose alpha amino group forms a covalent amide
bond with the epsilon amino group of Lys at position 9
of KPVSLSYRX (SEQ ID NO:10), thereby forming a dimer

<400> 11
Lys Pro Val Ser Leu Ser Tyr Xaa
1 5

<210> 12
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<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> Gly in position 17 may be present or absent

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 13
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<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may independently be present or absent

<400> 13
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 14
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<212> PRT
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<220>
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<220>
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<222> (17)..(17)
<223> Gly in position 17 may be present or absent

<220>
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<222> (30)..(30)
<223> AMIDATION

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 15
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<220>
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<222> (31)..(31)
<223> AMIDATION

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
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20 25 30

<210> 16
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<220>
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<220>
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<222> (20)..(20)
<223> Gly in position 20 may be present or absent

<400> 16
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15
His Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu
20 25 30
Asn

<210> 17
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<220>
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<220>
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<222> (20)..(21)
<223> Gly in positions 20 and/or 21 may independently be present or absent

<400> 17
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15
His Gly Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
20 25 30
Leu Asn

<210> 18
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<223> Gly in position 20 may be present or absent

<220>
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<222> (33)..(33)
<223> AMIDATION

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
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His Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu
20 25 30
Asn

<210> 19
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amide

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<222> (20)..(21)
<223> Gly in positions 20 and/or 21 may be independently
present or absent

<220>
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<222> (34)..(34)
<223> AMIDATION

<400> 19
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His Gly Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
20 25 30
Leu Asn

<210> 20
<211> 31
<212> PRT
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-E24/K28-cyclic acid

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<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (24)..(28)
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1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 21
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<220>
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-K20/E24-cyclic acid

<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (20)..(24)
<223> side chain cyclized using lactam formation

<400> 21
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1 5 10 15
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20 25 30

<210> 22
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<212> PRT
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-E24/K28-cyclic amide, CTCE0022

<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 22
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 23
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<212> PRT
<213> Artificial Sequence

<220>
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<220>
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<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 23
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1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 24
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<212> PRT
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-K20/D24-(E24->D)-cyclic acid

<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (20)..(24)
<223> side chain cyclized using lactam formation

<400> 24
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 25
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<212> PRT
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<220>
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-K20/D24-(E24->D)-cyclic amide

<220>
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<223> Gly in positions 17 and/or 18 may be independently present or absent

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<222> (20)..(24)
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<220>
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<222> (31)..(31)
<223> AMIDATION

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Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 26
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<220>
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-C9/C11-cyclic acid

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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

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1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 27
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<212> PRT
<213> Artificial Sequence

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SDF-1(1-14)-(G)-4-SDF-1(55-67)-C9/C11-cyclic amide

<220>
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<222> (9)..(11)
<223> cyclized with disulfide bridge

<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 27
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 28
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<212> PRT
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<220>
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SDF-1(1-14)-(G)-4-MIP-1alpha(36-50)-acid

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

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20 25 30
Val

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SDF-1(1-14)-(G)-4-MIP-1alpha(11-50)-acid

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<400> 29
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe
20 25 30
Ile Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Gly Val
35 40 45
Ile Phe Leu Thr Lys Arg Ser Arg Gln Val
50 55

<210> 30
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SDF-1(1-14)-(G)-4-MIP-1alpha(56-70)-acid

<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<400> 30
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
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20 25 30
Ala

<210> 31
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<220>
<223> portion of synthetic CXCR4 agonist
SDF-1(1-8)-2-lysine bridge dimer, CTCE9904

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Xaa = lysinamide whose epsilon amino group forms a covalent amide bond with the alpha amino group of Arg at position 8 of KPVSLSYX (SEQ ID NO:32), thereby forming a dimer

<400> 31
Lys Pro Val Ser Leu Ser Tyr Arg Xaa
1 5

<210> 32
<211> 8
<212> PRT
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<220>
<223> portion of synthetic CXCR4 agonist
SDF-1(1-8)-2-lysine bridge dimer, CTCE9904

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Xaa = Arg whose alpha amino group forms a covalent amide bond with the epsilon amino group of lysinamide at position 9 of KPVSLSYRX (SEQ ID NO:31), thereby forming a dimer

<400> 32
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1 5

<210> 33

<400> 33
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<210> 34

<400> 34
000

<210> 35
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<220>
<223> synthetic CXCR4 agonist SDF-1-derived cyclic amide (E24/K28)

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<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyetheleneglycol (PEG) moiety

<220>
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<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
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<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
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<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
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1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 36
<211> 31
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<213> Artificial Sequence

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<223> synthetic CXCR4 agonist SDF-1-derived cyclic acid (K20/E24)

<220>
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<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyetheleneglycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
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<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu Moiety

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 36
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1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 37
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
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<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<400> 37
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 38
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-SDF-1(55-67)-K28/D24-(E24->D)-cyclic amide

<220>
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<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<223> side chain cyclized using lactam formation

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<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 39
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<220>
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/E24-(K20->O)-cyclic acid

<220>
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<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
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<223> Xaa = Orn

<220>
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<222> (20)..(24)
<223> side chain cyclized using lactam formation

<400> 39
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Xaa Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 40
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<212> PRT
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<220>
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/E24-(K20->O)-cyclic amide

<220>
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<220>
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<223> Xaa = Orn

<220>
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<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 40
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Xaa Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 41
<211> 31
<212> PRT
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<220>
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SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/E24-(K28->O)-cyclic acid

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Orn

<400> 41
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Xaa Ala Leu Asn
20 25 30

<210> 42
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/E24-(K28->O)-cyclic amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Orn

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 42
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Xaa Ala Leu Asn
20 25 30

<210> 43
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/D24-(K20->O & E24->D)-cyclic acid

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> Xaa = Orn

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<400> 43
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Xaa Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 44
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/D24-(K20->O & E24->D)-cyclic amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> Xaa = Orn

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 44
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Xaa Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 45
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/D24-(K28->O
& E24->D)-cyclic acid

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently
present or absent

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Orn

<400> 45
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Xaa Ala Leu Asn
20 25 30

<210> 46
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/D24-(K28->O
& E24->D)-cyclic amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently
present or absent

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Orn

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 46
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Xaa Ala Leu Asn
20 25 30

<210> 47
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-MIP-1alpha(36-50)-amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently
present or absent

<220>
<221> MOD_RES
<222> (33)..(33)
<223> AMIDATION

<400> 47
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Arg Ser Arg Gln
20 25 30
Val

<210> 48
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-MIP-1alpha(11-50)-amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently
present or absent

<220>
<221> MOD_RES
<222> (58)..(58)
<223> AMIDATION

<400> 48
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15

```
Gly Gly Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe
            20                  25                  30
Ile Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Gly Val
        35                  40                  45
Ile Phe Leu Thr Lys Arg Ser Arg Gln Val
    50                  55
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<210> 49
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
SDF-1(1-14)-(G)-4-MIP-1alpha(56-70)-amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MOD_RES
<222> (33)..(33)
<223> AMIDATION

<400> 49

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1               5                   10                  15
Gly Gly Glu Glu Trp Val Gln Lys Tyr Val Asp Asp Leu Glu Leu Ser
            20                  25                  30
Ala
```

<210> 50
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist SDF-1-derived E24/K28-cyclic amide

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 50
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 51
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived E24/K28-cyclic amide

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:52) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 51
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa
1 5 10

<210> 52
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived E24/K28-cyclic amide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:51) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 52
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 53
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist SDF-1-derived K20/E24-cyclic amide

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 53
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 54
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived K20/E24-cyclic amide

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:55) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 54
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa
1 5 10

<210> 55
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived
K20/E24-cyclic amide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX
(SEQ ID NO:54) via a moiety providing covalent attachment
between N and C terminal portions of the peptides, such
as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 55
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 56
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 56
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 57
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 57
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 58
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:59) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 58
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa
1 5 10

<210> 59
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:58) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 59
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 60
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 60
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 61
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:62) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 61
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa
1 5 10

<210> 62
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:61) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 62
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 63
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 63
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 64
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:65) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 64
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Xaa
1 5 10

<210> 65
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:64) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 65
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 66
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 66
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 67
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:68) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 67
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe
1 5 10

<210> 68
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:67) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> cyclized

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 68
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 69
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 69
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 70
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:71) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 70
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa
1 5 10

<210> 71
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:70) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 71
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 72
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 72
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 73
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:74) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 73
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa
1 5 10

<210> 74
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:73) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 74
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 75
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 75
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 76
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:77) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 76
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa
1 5 10

<210> 77
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:76) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 77
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 78
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 78
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 79
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:80) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 79
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa
1 5 10

<210> 80
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:79) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 80
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 81
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 81
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 82
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:83) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 82
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa
1 5 10

<210> 83
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:82) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 83
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 84
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 84
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 85
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:86) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 85
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa
1 5 10

<210> 86
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:85) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 86
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 87
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 87
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 88
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:89) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 88
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1 5 10

<210> 89
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:88) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 89
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 90
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 90
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 91
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:92) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 91
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1 5 10

<210> 92
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:91) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 92
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 93
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 93
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 94
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:95) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 94
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa
1 5 10

<210> 95
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:94) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 95
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 96
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 96
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 97
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:98) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 97
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa
1 5 10

<210> 98
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:97) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 98
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 99
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 99
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 100
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:101) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 100
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa
1 5 10

<210> 101
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:100) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 101
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 102
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 102
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 103
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:104) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 103
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa
1 5 10

<210> 104
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:103) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 104
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 105
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 105
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 106
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:107) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 106
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa
1 5 10

<210> 107
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:106) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 107
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 108
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 108
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 109
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:110) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 109
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa
1 5 10

<210> 110
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:109) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<400> 110
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 111
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 111
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 112
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:113) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 112
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa
1 5 10

<210> 113
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:112) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 113
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 114
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 114
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 115
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:116) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 115
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa
1 5 10

<210> 116
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:115) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 116
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 117
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 117
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 118
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:119) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 118
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1 5 10

<210> 119
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:118) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 119
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 120
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 120
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 121
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:122) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 121
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1 5 10

<210> 122
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:121) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 122
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 123
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 123
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 124
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:125) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 124
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa
1 5 10

<210> 125
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:124) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 125
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 126
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 126
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 127
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:128) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 127
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa
1 5 10

<210> 128
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:127) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 128
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 129
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 129
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 130
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:131) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 130
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Xaa
1 5 10

<210> 131
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:130) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 131
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 132
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 132
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 133
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:134) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 133
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa
1 5 10

<210> 134
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:133) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 134
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 135
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 135
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 136
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:137) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 136
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa
1 5 10

<210> 137
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:136) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 137
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 138
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 138
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 139
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:140) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 139
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Xaa
1 5 10

<210> 140
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:139) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 140
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 141
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 141
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 142
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:143) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 142
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Xaa
1 5 10

<210> 143
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:142) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 143
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 144
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 144
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 145
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:146) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 145
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa
1 5 10

<210> 146
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:145) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 146
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 147
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 147
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 148
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:149) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 148
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa
1 5 10

<210> 149
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:148) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 149
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 150
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 150
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 151
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:152) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 151
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa
1 5 10

<210> 152
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:151) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 152
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 153
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 153
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 154
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:155) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 154
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa
1 5 10

<210> 155
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:154) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 155
Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 156
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 156
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 157
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:158) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 157
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa
1 5 10

<210> 158
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:157) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 158
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 159
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 159
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 160
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:161) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 160
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa
1 5 10

<210> 161
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:160) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 161
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 162
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 162
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 163
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:164) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 163
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1 5 10

<210> 164
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:163) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 164
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 165
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 165
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 166
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:167) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 166
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1 5 10

<210> 167
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:166) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 167
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 168
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 168
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 169
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:170) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 169
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa
1 5 10

<210> 170
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:169) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 170
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 171
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 171
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 172
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:173) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 172
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa
1 5 10

<210> 173
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:172) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 173
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 174
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 174
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 175
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:176) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 175
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa
1 5 10

<210> 176
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:175) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 176
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 177
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 177
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 178
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:179) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 178
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa
1 5 10

<210> 179
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:178) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 179
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 180
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 180
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 181
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:182) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 181
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa
1 5 10

<210> 182
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:181) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 182
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 183
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 183
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 184
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:185) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 184
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa
1 5 10

<210> 185
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:184) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 185
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 186
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 186
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 187
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:188) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 187
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa
1 5 10

<210> 188
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:187) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 188
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 189
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 189
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 190
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:191) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 190
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa
1 5 10

<210> 191
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:190) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 191
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 192
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 192
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 193
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:194) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 193
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1 5 10

<210> 194
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:193) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 194
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 195
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 195
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 196
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:197) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 196
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1 5 10

<210> 197
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:196) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 197
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 198
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<400> 198
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 199
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:200) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 199
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa
1 5 10

<210> 200
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:199) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 200
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 201
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 201
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 202
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:203) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 202
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa
1 5 10

<210> 203
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:202) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 203
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 204
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic amide (E24/K28)

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:205) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 204
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa
1 5 10

<210> 205
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic amide (E24/K28)

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:204) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 205
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 206
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic acid (K20/E24)

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:207) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 206
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa
1 5 10

<210> 207
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic acid (K20/E24)

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX (SEQ ID NO:206) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 207
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 208
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently present or absent

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 208
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 209
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:210) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 209
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa
1 5 10

<210> 210
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KPVSLSYRAPFRFX (SEQ ID NO:209) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 210
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 211
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> 4 glycine linking moiety, [linker]

<400> 211
Gly Gly Gly Gly
1

<210> 212
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> three or four glycine linker

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Gly in position 4 may be present or absent

<400> 212
Gly Gly Gly Gly
1

<210> 213
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> G-1-4 linker

<220>
<221> MISC_FEATURE
<222> (2)..(4)
<223> Gly in positions 2-4 may be present or absent

<400> 213
Gly Gly Gly Gly
1

<210> 214
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> variable spacer monomer

<220>
<221> MISC_FEATURE
<222> (3)..(4)
<223> Gly in positions 3-4 may be present or absent

<400> 214
Gly Gly Gly Gly
1